Optimizing AI-Powered Music Creation Social Media to Amplify Learning Content

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Abstract: This research aims to describe the orienting, implementing, and assessing aspects constructed by music teachers in optimizing AI-powered music creation social media to amplify learning content. This research used a qualitative approach with a descriptive method. Data were collected through focus group discussions (FGDs) and documentation studies. The data analysis technique used the Miles and Huberman model with the stages, 1) data collection, 2) data reduction, 3) data presentation, 4) conclusion drawing/verification. Data validity used triangulation techniques, including source and technical triangulation. The results show that, orientatively, the experience of interacting with technological advances and social dynamics has shaped the respondents' knowledge and understanding, not only on various types and functions, but also in determining the strengths, weaknesses, opportunities, and threats of the platform. Implementatively, in line with the values of music education, the integration of a platform that amplifies content into learning is used to engage students' creative dimensions where cognitive, affective, and psychomotor are bound to the ethical principles of AI use and aesthetic criteria of music. By assessment, the involvement of peer teachers and students provided an important drive in establishing effectiveness, impact, and support from stakeholders. This study recommends that the development of AI used in creation is a new challenge for music teachers in strengthening the integrity of their professionalism. The utilization of these tools and resources makes it easier for them to be creative in clarifying and emphasizing the elements of musical sound to build effective and valuable learning.

Introduction

The integration of AI-powered music creation social media in music education represents a significant advancement, providing teachers with innovative tools to enhance learning content (Bauer, 2014; Waddell & Williamon, 2019). Despite the potential of these technologies to bridge skill gaps and promote creativity, there remains a critical need to explore how effectively they are being utilized in educational settings (Holland, 2013; Sheng, Fang, Shao, Alterman, & Wang, 2022). This study addresses a gap in current research by examining the practical application and optimization of these platforms in amplifying music learning content. The urgency of this research lies in the rapid technological evolution and its impact on teaching methodologies (Koehler & Mishra, 2009; Takemura, 2012; Verma, 2021; Zulić, 2019).

The purpose of music education is to develop students' understanding so that they are able to express themselves aesthetically in line with their talents (Gordon, 1980). The fundamental aspects that build the aesthetic values of music rely on sound attributes and musical criteria (Tovey, 2013). These need to be presented in order to build students' musical appreciation and understanding (Thompson, Bullot, & Margulis, 2023). These two concepts,

appreciation and understanding, become the starting point in teaching and learning music towards the next stage (Gouzouasis, 2021).

The use of technological platforms and features in learning provides a powerful possibility to develop and share music content for appreciation and understanding knowledge more easily (Clement & Fischer, 2021). The development of various music creation platforms with very varied features can be utilized to help teachers overcome their limitations in developing musical content for music learning (Schüler, 2021). Advances in digital technology platforms and features now offer various applications to overcome the impasse of a person in realizing their musical ideas (Clauhs & Dozoretz, 2022; Kostek, 2019; Leonard, Cadoz, Castagné, Florens, & Luciani, 2013; Soysal & Yürümez, 2020). Artificial intelligence (AI) technology integrated with music creation social media offers convenience for music students and teachers in enhancing their overall learning and teaching experience. Students are actively engaged in understanding music theory and the characteristics of different musical elements. At the same time, students gain an explorative experience of music creation through a widely connected network (C. Cheng & Xiao, 2022). Adapting to advances in AI technology, music teachers need to equip themselves with an understanding of the importance of creativity, critical thinking and collaboration in designing relevant curricula and teaching methods. Explorative practices can directly build the creative thinking skills needed for music development with AI technologies (W. K. George, 2023).

Learning content stands at a strategic position. This is based on the idea that materials are needed to prevent assumptions that are not relevant to learning outcomes (Araya, 2007). Music learning content is learning materials that are relevantly organized around conceptions and applications of music, both textual and contextual (Gordon, 1980). Textually, music learning content includes sound attributes and musical elements. Sound attributes consist of, high-low sound, loud-soft sound, sound color, fast-slow and long-short sound. The elements of music include melody, rhythm, beat, harmony, tonality, and technical terms for playing musical instruments, singing, and music composition (Seashore, 2024). Contextually, music learning content is built with explanations related to various perspectives that influence how sound attributes and musical elements are developed such as composer biography, music history, ethnicity, religion, and politics (Hargreaves, 1995).

The utilization of social media music creation platforms in amplifying the elements of musical sound is driven by ease of collaboration and technological innovation. Advanced editing and mixing features facilitate sound exploration and manipulation, while interaction with the global community provides constructive feedback (Cayari, 2021). AI features in social media music creation platforms help develop a framework of musical harmony with advanced analysis and automated recommendations (Hernandez-Olivan & Beltran, 2022). AI can recognize musical patterns, suggesting harmonious chords, melodies, and arrangements. This allows musicians to create more complex and interesting compositions with high efficiency (Verma, 2021). Collaboration with AI also expands creative possibilities and innovation in the music creation process (Nicholls, Cunningham, & Picking, 2018). Musicians can develop ideas, reach a wide audience, and collaborate with fellow artists around the world efficiently (Toscher, 2021). The influence can be seen in several variables, ranging from music creation, such as melody and harmony composition, to audio processing, such as remastering and tempo adjustment (Deruty, Grachten, Lattner, Nistal, & Aouameur, 2022).

Education mitigates the impact of digital advances by equipping individuals with critical, adaptive skills. Success hinges on equitable access and responsive curricula that align with technological and social changes. (Kwiecień et al., 2024; Zulić, 2019). Digital

technology enhances education by providing broad access to resources, interactive learning, and global collaboration. It allows personalized learning and effective evaluation. With AI and social media platforms, music teachers can now integrate these tools into their teaching strategies (Opfer, Pedder, & Lavicza, 2011). Teachers must integrate digital tools like e-learning platforms and social media, develop digital literacy, and teach technology ethics. Using interactive methods, they can create engaging learning environments. Regularly evaluating and adjusting strategies, along with peer collaboration and ongoing training, are essential for improving competence (Bauer, 2014). Assessing the effectiveness of learning content and digital platforms involves both objective and subjective measures. Students' active participation and creative work influence subjective assessment, which should be verified objectively by evaluating how they manage musical elements. (Gilbert, 2016).

The quality of music education depends on teachers' competence in managing the learning process, understanding students, and supporting the curriculum. Success hinges on effectively integrating creativity with technology in teaching. According to Indonesian regulations, music teachers must use digital platforms to enhance learning and self-development. Given current trends, an in-depth study of technology and content knowledge is needed to prioritize music aesthetics and improve student understanding. Music educators are now faced with the challenge of adapting to AI tools that can both support and limit creative expression. The novelty of this study is rooted in its focus on the real-world application of AI in music education, providing insights into the integration of these tools to enrich the learning experience and professional development of teachers. This research aims to describe the orienting, implementing, and assessing aspects constructed by music teachers in optimizing AI-powered music creation social media to amplify learning content.

Research Method

This research used a qualitative approach with a descriptive method. In this case, the researcher explores and clarifies the data as it is. The research stages include determining the object of research, formulating the problem, determining the subject, determining data collection and analysis techniques, and determining conclusions (Moleong, 2010). The object of this research relevantly refers to our previous research (F. Cipta, Masunah, & Milyartini, 2023; Febbry Cipta, Sukmayadi, Milyartini, Kholid, & Gunara, 2024). The research subjects were purposively sampled involving 12 respondents who had also been involved in previous research, namely high school music teachers, both public and private, in Bandung city selected from eight different sub-districts. Thus, the current study is to clarify the results of the previous study. As for the current research, data were collected through FGDs and clarified by documentation studies (Matsunobu, 2023). The FGDs were guided by a moderator, based on three aspects of discussion with 10 benchmarks adopted from previous studies (Bohm, Fischer, & Richardt, 2023; Civit, Civit-Masot, Cuadrado, & Escalona, 2022; de Aguiar, 2024; Feuerriegel, Hartmann, Janiesch, & Zschech, 2024; Holland, 2013). As for the documentation study, the documents collected were relevant to this study and could clarify the FGD questions. The documents are in the form of written text, images, audio, and video, the source of which is not only from each participant but also from the internet.

Tabel 1. Research framework

Aspects	Benchmarks
Orientation	Understanding of AI-powered music creation social media platforms and features and learning content
	Analysis of the strengths, weaknesses, opportunities, and threats in integrating music auto-generative systems from AI platforms and features in the school

	music curriculum
	Consideration toward ethical principles of using AI
	Organize features availability in the platform to build the aesthetic aspects of music
Implementation	Relevant use of platforms and features in achieving learning objectives
	Utilization of platforms and features in evoking cognitive, affective, and psychomotor responses in students
	Utilization of platforms and features in enhancing student creativity and collaboration
Assessment	Measuring the effectiveness of platform utilization and features in amplifying music learning content
	Summarizing the impact felt by students from learning music by utilizing AI-powered music creation social media
	Formulating the support needed from the school and other stakeholders to optimize the use of AI-powered music creation social media for music learning

After the data is collected, it is then processed by reducing the data until meaningful information is obtained and making it easier to draw conclusions. Data is presented in the form of narrative text explaining the pattern of data relationships between one another. The conclusions made, and the reduction of the collected data are then checked to achieve analysis. Finally, triangulation of sources and techniques was used to validate and test the validity of the data (Miles, Huberman, & Saldana, 2014).

Results and Discussion

The findings of this study have significant implications both conceptually and practically. Conceptually, the results of this study confirm the importance of technology integration in music education, particularly in strengthening the technological pedagogical and content knowledge (TPACK) training model for music teachers. The findings also expand the understanding of how a reflective approach can be effectively applied in improving teachers' competence in adopting and utilizing technology for learning innovation. On the practical side, this study provides guidance for training program developers to design more effective training modules, emphasizing the importance of a deep understanding of TPACK and its application in the context of music learning. Thus, the results of this study are expected to serve as a reference for policymakers and educational practitioners in developing training strategies that can improve the quality of music learning in the digital era.

Teacher Orientation Towards AI Technology

Referring to the definition, orientation is a process of how respondents respond to the advancement of AI technology based on their experience. Each respondent conveyed various things related to what they know about this platform used in amplifying their learning content.

Respondent understanding

Generally, respondents stated that AI-powered music creation social media is a social media platform that combines music creation with the help of artificial intelligence technology and social media features. The platform offers a new experience in creating and sharing music with the help of artificial intelligence that is capable of generating user instructions, as well as connecting with other fellow users through an extensive network. With this platform, respondents create music using features that allow them to create music by entering various parameters that include genre, mood, specific instruments, tempo and

time signature, tonal keys, and other musical terms. The music auto-generative system on the AI will then recommend music to be used as drafts that users need to develop more aesthetically. In addition, users can share their works with each other, collaborate to create works, give feedback, and build a community with other users.

The foregoing reflects the fact described by previous research that this technology has the ability to generate written commands into musical forms (Boussouf, 2024; de Aguiar, 2024; Feuerriegel et al., 2024; Mishra, 2023). However, the technology still continues to do deep learning so that the system can produce works that are truly close to the user's expectations (Chang, 2024; Zhao, 2021). Deep learning is a sub-section of machine learning, which is a method inspired by the structure and function of the human brain to train computers to process information. Deep learning uses mathematical models built with large networks of interconnected data to learn and recognize complex patterns. It is like a neural network in the human brain, where each layer learns a different level of abstraction from the data it processes (Chaozhi Cheng & Xiao, 2022; Herremans, 2020; Zheng, 2020).

The SWOT Analysis

In terms of the strengths, weaknesses, opportunities and threats (SWOT) of integrating the platform into the school music curriculum, respondents generally stated that the strength of the music auto-generative system is that it opens up the accessibility of music to students with different levels of musical skills. Students with limited musical knowledge and skills can use this platform to create, experiment and learn the basics of music. The weakness aspect of this platform is that it cannot provide enough focus on developing fundamental music skills for students such as reading notation, playing instruments, and understanding music theory. The vulnerability of the music auto-generative system allows students to easily plagiarize other people's music, as they can easily produce music that sounds similar to existing music.

As for the opportunities perceived by respondents, this system can help to increase inclusivity in music education by providing wider access for students with varied ability backgrounds. The system can be used to develop a more innovative and engaging music curriculum for students, as well as enabling collaboration between students, teachers and professional musicians. In terms of threats, respondents' concerns that reliance on the system could weaken students' skills in not only playing instruments and singing, but also in understanding musical aesthetics. In addition, overuse of these systems may lead to a lowering of musical standards, as students may not be motivated to study and practice music in depth.

Thus, for their professionalism, teachers have an important task in integrating technological advances on this platform to innovate the music learning curriculum (Bauer, 2014). This is based on the direction of music education related to developing the aesthetic value of music in students (Tovey, 2013). On the other hand, concerns about the ethical principles of using these systems, such as the potential for plagiarism and exploitation of musical works produced by AI, respondents rely on educational values that are able to fence them off.

Ethical principles

There are several ethical principles for the use of this platform presented by respondents. These are related to responsibility and transparency, accessibility and inclusivity, data privacy and security, and the balance between music auto-generative systems and human creative interaction. This is in line with the view (A. S. George, 2023) that AI features on these platforms should be used to enhance music learning to make it more effective, meaningful and responsible. Respondents discussed the ethical use of AI in music

learning, emphasizing accessibility, inclusivity, data privacy, and security. They recommended strict protection of students' personal data, clear consent, and robust safeguards. Teachers were urged to balance AI with human interaction, guiding and advising in creating a supportive learning environment. AI aids in tasks like personalized feedback and interactive materials.

Music aesthetic criteria

The aesthetic criteria of music in this study are the elements that make music beautiful, enjoyable and meaningful. These criteria are subjective and influenced by culture. Through the FGDs, there were some general criteria presented by the respondents. The aesthetic criteria include melody, harmony, rhythm, timbre, dynamics, texture, form and structure, expression, and originality. This is in line with the views of (Clark-Fookes, 2023; Guo, 2020; Saarikallio, Nieminen, & Brattico, 2013). AI aids users in creating musical compositions by providing creative tools and resources. It generates aesthetic criteria based on cultural, genre, and individual preferences. However, respondents believe AI's aesthetic criteria are primarily Western and industrial, unlike plugin applications in offline DAWs that offer a wider range of musical concepts.

AI Implementation in Music Learning

Through information obtained from respondents in general, learning process involves stages of apperception, appreciation, demonstration, creation, and evaluation. During apperception, teachers explain learning objectives and introduce media and creative product development workflow. They connect students' existing knowledge to new material, stimulate discussion, and connect concepts to previous experiences. Social media platforms with AI features are briefly introduced. The appreciation stage involves the teacher playing a piece, explaining musical elements and context, and engaging students in in-depth observation of song structure, harmonization, and rhythm patterns. The teacher also discusses how music is processed using AI features and technological advances.

In the demonstration stage, the teacher demonstrated the use of AI in music creation using social media platforms. They used automatic platforms for text input and processed it into a song. The teacher also used a platform that generated musical structures, harmonization, articulation, virtual instruments, and rhythm patterns. This approach allowed students to develop according to their needs, interests, and abilities. At the creation stage, Students practice creating musical ideas using a suggested platform, with guidance from the teacher. They exchange opinions and suggestions. The teacher evaluates their work, aiming to prepare them for future creative product creation and adaptability to technological advances.

Associating with learning objectives

Music learning objectives in the high school phase in Indonesia are classified into five elements of the learning process: experiencing, reflecting, thinking and working artistically, creating, and impacting (https://rb.gy/5vtp21).

Tabel 2. Elements and learning objectives of high school music phase

Learning elements	Learning objectives
Experiencing	Understand the elements of musical sound by actively engaging
	Understand the context of music performance
Reflecting	Analyze types of music from a variety of musical practices
	Critique music from a variety of musical practices
Thinking and working artistically	Understand musical habits by recognizing the elements of music
	Apply music sound in a planned practice

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	Create a musical sound system
Creating	Create unique and authentic music
	Realize and present musical works involving other fields of art or involving the use of technology
Impacting	Apply good habits and routines in practicing music and other practices outside of music regularly
	Appreciate diversity and broaden understanding of musical contexts

AI-powered music creation social media is utilized by respondents to effectively amplify learning content. This is done as an effort to build an active and interesting learning process by presenting amplified learning content in the form of clear musical sound elements (Campanini, 2023; Ramirez, 2018). Referring to table 2 above, in an effort to achieve learning objectives in the experiencing element, this platform is utilized, in addition to building an understanding of musical sounds and musical elements, also to understand the context of music presentation. The AI feature used is a generating system that is relevant to the fundamental knowledge of music in the aspects of melody, harmony, rhythm patterns, rhythm, musical form, and musical texture. Auditatively presented in learning so that it concentrates on hearing.

In the reflecting element, the teacher uses the music auto-generative system feature on a platform to analyze sound elements and musical patterns, playing examples of costumed music genres. They explain similarities and differences in each aspect. The artistic concept of music is driven by processing musical elements. Concerning the learning objective of the creating element, Respondents generally believe that AI-powered music creation social media aids students in independently developing collaborative creative ideas for managing musical elements, while also focusing on ethical and aesthetic aspects, ensuring responsibility and transparency in the development of musical creative ideas.

Generally, by integrating technology into music learning, students are expected to have the ability to listen carefully and take the initiative to be actively involved in the creative work of managing musical sound elements. In addition, this activity is expected to be a vehicle for increasing their sensitivity to the elements of musical sound and their understanding of the various accompanying aspects of musical presentation. Authentically, students can develop their musical ideas into a creative product (Gardner, 2000; Gordon, 1980).

Triggering students' cognitive, affective and psychomotor responses

The amplified learning content functioned as a medium to evoke students' cognitive, affective and psychomotor responses. The application of auditive media is supported by teacher demonstrations and instructions in clarifying the musical content. Practices are organized in an engaging manner guided by musical creative problems, fundamental questions about the elements of musical sound, and the process of work development.

Refers to (Bauer, 2014; W. K. George, 2023; Guo, 2020), cognitively, musical knowledge becomes the foundation of how students explore musical sound elements using the platform. Effectively, the ethical principles of using AI and the aesthetic fundamentals of music are applied. Musical sound elements are explored collaboratively by utilizing the AI generation system. Students' cognitive, affective, and psychomotor responses can be seen from how they understand concepts and learning materials better, develop interest and motivation to learn, and psychomotor in the form of creative and collaborative work. Using AI in music learning can provide interactive, personalized experiences, and adaptive feedback, promoting students' understanding, motivation, and practical skills, thereby maximizing their potential in music.

Enhance student creativity and collaboration

The features available in the AI-powered music creation social media allow students to learn to develop their creative ideas and collaborate with peers. Although the work steps that students do still refer to the work instructions delivered by the teacher, this approach is able to encourage students to play an active role during the process. What is expected from this activity is that in developing creative products students are able to show creative ways of working (Clauhs & Dozoretz, 2022; Connor, 2020)

Students input text into an AI-generated song platform, which is then reprocessed using another platform to create harmony patterns, modify melodies, and add virtual instruments, involving both online and offline collaborations. Integration of information systems and technology into music learning allows students' curiosity to grow into explorative efforts to innovate with different ways of working (Takemura, 2012). The explorative process of developing the elements of musical sound involves experimentation, improvisation and creative exploration of various musical elements such as melody, harmony, rhythm and sound texture (Gordon, 1980). This process not only develops technical expertise but also fosters creativity and innovation in music creation. With an exploratory approach, musicians can find their own voice and create compositions that are more profound and meaningful to them and their listeners (Gardner, 2000).

AI-Integrated Music Learning Assessment
Measure the effectiveness of platform and feature usage

Social media's AI-powered music creation platform effectively enhances music learning content by providing auditory stimuli that cater to different learning styles and improving understanding and retention of musical sound elements (W. K. George, 2023). The use of this platform is able to attract students' attention with good sound arrangements supported by interactive explanations, making the learning experience more interesting and enjoyable. The content can be accessed anytime and anywhere, so students can learn according to their own interests and needs, also beneficial for distance learning and self-directed learning.

Impact on students

Learning content that has been amplified using AI-powered music creation social media has an impact on students' self-encouragement in demonstrating creative work. Feedback and reviews of the content they learn, including ratings based on factors of interest, achievement and learning structure, are used to assess the quality and relevance of the content. This activity provided support for students to improve their skills in producing creative work independently and collaboratively using AI technology.

School and stakeholder support

In addition to support in the form of training opportunities for teachers, schools should provide teacher training, and resources for AI-powered music creation social media, and develop policies covering privacy, security, and copyright issues to ensure effective use in schools. Regarding stakeholders including platform developers, researchers, and parents, respondents believe AI-powered platforms should be designed for music learning, with teachers' input crucial. Research on the effectiveness of these platforms can aid teachers in making informed decisions. Parents should be informed about these platforms' use in the classroom and provide support.

Conclusion

The results of this research conclude that orientatively, the experience of interacting with technological advances and social dynamics has shaped the respondents' knowledge and understanding, not only on various types and functions, but also in determining the strengths, weaknesses, opportunities, and threats of the platform. Implementatively, in line with the values of music education, the integration of a platform that amplifies content into learning is use to engage students' creative dimensions where cognitive, affective, and psychomotor are bound to the ethical principles of AI use and aesthetic criteria of music. By assessment, the involvement of peer teachers and students provided an important drive in establishing effectiveness, impact, and support from stakeholders.

Recommendation

This study recommends that, the development of AI used in creation is a new challenge for music teachers in strengthening the integrity of their professionalism. The utilization of these tools and resources makes it easier for them to be creative in clarifying and emphasizing the elements of musical sound to build effective and valuable learning.

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